United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
585 SHEPARD WAY
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

March 5, 2009

10,078

U.S. Environmental Protection Agency, Region 8
Attn: Bonnie Lavelle
1595 Wynkoop St.
Denver, CO 80202-1129

Dear Ms. Lavelle:

The U.S. Fish and Wildlife Service (Service) has reviewed the document entitled "Draft Remedial Investigation for Operable Unit 3, Libby Asbestos Superfund Site, Phase III Sampling and Analysis Plan," under an Interagency Agreement with EPA. It is our understanding that this draft document will change significantly based on the discussions at the Libby Biological Technical Assistance Group (BTAG) Meeting in Denver on February 4 and subsequent conference calls. The Service would like the opportunity to comment on the next draft of the Phase III Sampling and Analysis Plan (SAP). The Service has the following comments on the document:

4.1.1 Conceptual Site Model.
Amphibians are listed only as a terrestrial receptor. We recommend placing amphibians in both the terrestrial and aquatic receptor categories. Alternatively, if they are placed in only one group, the more appropriate group would be with the aquatic receptors.

4.2.2.1 Data Quality Assessment of Existing Data
One significant data gap in surface water samples collected from the site is the lack of a rainstorm event that results in increased stream flows. We are aware that concentrations of Libby Amphibole (LA) increased during spring runoff, but are uncertain how that would compare to rainstorm generated runoff. Because of this data gap, the Service recommends adding an uncertainty factor to the highest concentration detected (1,245.2 MFL) to be used as the highest concentration for the fish toxicity test.

4.2.2.2 Data Quality Objectives for New Surface Water Data.
Step 4. The Service recommends that surface water data be collected at all seven on-site locations. This would help understand temporal variability at these sites. In addition, this is listed as a data need in 4.2.4.2 (Step 3: Identify the types of data needed) to determine if changes

in fish population metrices are correlated with the concentration of LA in the water. Under the current sampling regime, those comparisons would not be possible at all fish sampling locations proposed for this fall.

4.2.3.1 Data Quality Assessment of Existing Data
Paragraph 8. Change bio-film to biofilm.

4.2.3.2 Data Quality Objectives for Additional Fish Toxicity Test Data
The Service has several comments on the "Fiber Pilot Study Design," that was discussed on a March 2, 2009 conference call. The Service agrees with the general consensus of using lab water spiked with LA. Additionally we agree with the use of a flow-thru setup to keep LA exposure more constant than the previously preformed toxicity test. The outline provided on this pilot study did not mention how LA would be kept in suspension in the water that will be used in the flow-thru setup. This information should be included in future drafts.

The current pilot study design states the highest concentration used in the toxicity test will be 30 MFL. The Service believes this number should be higher for several reasons. First, fish inhabiting stream and pond environments on the mine site are likely exposed to LA concentrations greater than surface water concentrations because of the effects of bioturbation of the sediments. Several comments have been made about some of the elevated concentrations detected may be a result of disturbing the sediments, fish would be exposed to those fibers as well. Second, as stated previously, significant data gaps exist with regards to maximum concentrations of LA in surface waters. Only snowmelt/spring runoff data exist, no rainstorm events were captured. These events could be more erosive, and could potentially deliver higher concentrations of LA to surface waters. Because of the rain event data gap, the Service recommends adding an uncertainty factor to the highest concentration detected. This would have a better chance of covering the range of exposures on-site rather than using an average concentration. In addition, if the proposed 30 MFL average is used, it may be lower than a no effect level. In this situation, the toxicity test would have little value in formulating a remedial action level. The Service strongly recommends that the maximum concentration selected for the fish toxicity test be 10 BFL.

4.2.4.2 Data Quality Objectives for Fish Population Demographic Observations
Step 3: Identify the Types of Data Needed
In the second paragraph, this reference appears to be numbered incorrectly (see Section 4.1.2.2, above).

4.3.2 LA Concentrations in Sediment
Data Quality of Existing Data
This section states that LA concentrations are constant over time. The data listed in Table 4.3 appear to show quite a bit of within-location variability.

4.3.4.2 Data Quality Objectives for Additional Benthic Invertebrate Data
Step 5: Define the Decision Rule
This section describes how the benthic invertebrate data will be used. It states that only

moderately to severely impaired sites will be considered impaired by LA (Figures 4-7 and 4-8). This would mean that a 49% reduction in biological condition score would be considered an acceptable risk. A 50% reduction in the benthic community is not protective. The exact percentage drop in biological condition score that is considered unacceptable risk will likely have some element of subjectivity, but it is recommended that 76% and lower be considered an impaired biological condition score. This is generally consistent with the approach taken by the state of Montana.

4.3.4.3 Detailed Study Design.
Montana Department of Environmental Quality (MT DEQ) currently recommends compositing at least 7 samples and typically completes 13-14 surber samples within a site. The current standard operating procedure (SOP) calling for three samples seems inadequate in comparison to MT DEQ SOPs.

4.4 Exposure of Mammals to Asbestos.
The Phase III SAP represents a sampling effort quite different than what was discussed at our February 4, 2009 BTAG meeting in Denver. The Service agrees with expanding the sampling area from SL-45-03 to a polygon drawn around the following sampling locations SL45-02, SL45-03, SL75-02 and SL75-03. However, we feel that limiting the sampling to this polygon will not capture the exposures that likely occur within the disturbed mine site. The Service would like to see the small mammal trapping effort expanded to include sampling grids on the disturbed mine site area, as we believe this will represent higher levels of exposure than the proposed sampling area. We also feel that sampling the Columbian ground squirrel (*Spermophilus columbianus*) colony on site could potentially provide valuable data that will not be obtained by limiting samples to deer mice (*Peromyscus maniculatus*) and red-backed voles (*Clethrionomys gapperi*). Columbian ground squirrels are longer lived, add 4-7 m of tunnels to their burrow system annually, exhibit dusting behaviors, females have a small home range (1,000 m^2), and typically do not reach sexual maturity until they are 2 years old. Use of these mammals could address different exposure pathways, as well as provide information on longer exposures.

As proposed, the current sampling plans do not include sampling locations within the disturbed mine site. Consequently, if this area depicts no risk, the Service believes you will have an unacceptable data gap about "on-site" risk. It would seem much more efficient to sample both areas at the same time instead of potentially mobilizing twice.

In addition to sampling for small mammals, the Service also recommends taking a composite duff sample around each trap. These samples could be archived until all histologies are complete. LA concentrations in duff samples may prove invaluable in helping explain differences in effects that may be identified during histological examination. These duff samples could also guide remedial decisions as the absence of effects could be compared to duff collected in the area.

The Service also recommends including LA tissue burden analysis with histological analysis. This would be an important line of evidence along with the concentrations of LA in the duff.

An additional consideration in the study design should be the Endangered Species Act (ESA). The ESA (16 U.S.C. Sec. 1531-1544, 50 CFR Part 402 and 40 CFR Sec. 6.302(h) requires that any federal activity or federally authorized activity may not jeopardize the continued existence of any threatened or endangered species known to live or to have lived in the affected environment or destroy or adversely modify critical habitat. This ARAR requires EPA to ensure that the selected remedy is sufficiently protective of the environment containing the threatened or endangered species, with an emphasis on reducing the risks from the contaminants of concern to the listed species to an acceptable level, and to ensure that the selected remedy is implemented in a manner such that effects on any existing threatened or endangered species from the active remedy implementation activities are avoided or mitigated.

Threatened mammals that likely occur in the area of the mine include gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos horribilis*), and Canada lynx (*Lynx canadensis*). Critical habitat for the Canada lynx was published in the Federal Register February 25, 2009, and based on the duff sampling results, contains areas of elevated LA (Figure 1). The Service would like to see consideration given to the effects of LA on Canada lynx as well as their food resources.

Snowshoe hares comprise a majority of the lynx diet (Nellis *et al.* 1972, Brand *et al.* 1976 Koehler 1990, Apps 2000, Aubry *et al.* 2000, Mowat *et al.* 2000, von Kienast 2003,Squires *et al.* 2004b), and are a primary constituent element (PCE) of critical habitat (74 FR 8616). A PCE is a physical or biological feature essential to the conservation of a species for which its designated or proposed critical habitat is based on, such as space for individual and population growth, and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and habitats that are protected from disturbance or are representative of the species' historic geographic and ecological distribution.

When snowshoe hare populations are low, female lynx produce few or no kittens that survive to independence (Nellis *et al.* 1972, Brand *et al.* 1976, Brand and Keith 1979, Poole 1994, Slough and Mowat 1996, O'Donoghue *et al.* 1997, Aubry *et al.* 2000, Mowat *et al.* 2000). Lynx prey opportunistically on other small mammals and birds, particularly during lows in snowshoe hare populations, but alternate prey species may not sufficiently compensate for low availability of snowshoe hares, resulting in reduced lynx populations (Brand *et al.* 1976, Brand and Keith 1979, Koehler 1990, Mowat *et al.* 2000). Individual lynx maintain large home ranges (reported as generally ranging between 12 to 83 mi2 (31 to 216 km2)) (Koehler 1990, Aubry *et al.* 2000, Squires and Laurion 2000, Squires *et al.* 2004b, Vashon *et al.* 2005a). The size of lynx home ranges varies depending on abundance of prey, the animal's gender and age, the season, and the density of lynx populations (Koehler 1990, Poole 1994, Slough and Mowat 1996, Aubry *et al.* 2000, Mowat *et al.* 2000, Vashon *et al.* 2005a). When densities of snowshoe hares decline, for example, lynx enlarge their home ranges to obtain sufficient amounts of food to survive and reproduce (74 FR 8616).

Snowshoe hare density is the most important factor explaining the persistence of lynx populations (Steury and Murray 2004). A minimum snowshoe hare density necessary to maintain a persistent, reproducing lynx population within the contiguous United States has not

been determined, although Ruggiero et al. (2000) suggested that at least 0.5 hares per hectare (ha) (0.2 hares per acre (ac)) may be necessary. Steury and Murray (2004) modeled lynx and snowshoe hare populations and predicted that a minimum of 1.1 to 1.8 hares per ha (0.4 to 0.7 hares per ac) was required for persistence of a reintroduced lynx population in the southern portion of the lynx range (74 FR 8616). Canada lynx and snowshoe hare exposures to LA should be considered in the Ecological Risk Assessment.

4.5 Exposure of Birds to Asbestos

The Montana Natural Heritage Program (2007) documented 238 species of migratory birds within 30 km of the mine site. The Service wants to assure that migratory birds are not at risk from asbestos.

The Migratory Bird Treaty Act (16 U.S.C. Sec. 668 et seq.) establishes a federal responsibility for protection of the international migratory bird resource and requires continued coordination by EPA with the Service during remedial design and remedial construction to ensure that the cleanup of the site does not impact migratory birds. Specific mitigative measures may be identified for compliance with this requirement as appropriate for performance by the persons who implement the remedy.

At this time, birds will not be included in proposed work completed on the site this summer. In the future, the Service would like to comment on how LA risks to birds should be evaluated.

4.6 Exposure of Amphibians to Asbestos

Several changes have been proposed to this section of the SAP, to the extent that the Service is uncertain how to comment. The SAP, as written, proposes the use of a short-term standard laboratory toxicity test to measure the effects of LA on a sensitive embryonic lifestage. The test will assess the mortality, growth and development but does not include metamorphosis. Metamorphosis would then be assessed by monitoring on site amphibians. Breeding sites would be surveyed for eggs or tadpoles, and when found, monitored over time. Once metamorphosis occurs, 50 to 100 frogs or toads would be collected and examined for abnormalities. These two measurement endpoints complement each other well and provide a logical approach to assess risk.

Discussions of this approach have revolved around a reluctance to conduct the field portion of the proposed SAP. The major concern has been the cost associated with monitoring tadpoles to capture metamorphosis. Additionally several discussions focused on how to determine the cause of an observed abnormality. This is a reasonable concern that could be potentially answered with additional laboratory studies that target metamorphosis to determine whether LA is the cause of the malformations. Alternatively, a laboratory test could be performed that started at the embryonic stage and continued to through metamorphosis. If the latter strategy is chosen, then it would be important to determine if the media tested would be surface water, sediment or both. Tadpoles are in intimate contact with both media and either or both could be a significant source of exposure.

Thank you for the opportunity to comment of the Phase III SAP. Should you have any questions concerning these comments or desire additional information please contact me at 406-449-5225 extension 205, or Ms. Karen Nelson of my staff at extension 210.

Sincerely,

R. Mark Wilson

R. Mark Wilson
Field Supervisor

Figure 1. Canada Lynx Critical Habitat